Space Systems Department
Systems Engineering & Integration

The Systems Engineering & Integration (SE&I) Division provides MSFC projects value-added solutions to a broad spectrum of SE&I challenges from initial Trade Studies through Sustaining Engineering. The specialized and experienced SE&I technical staff applies the seventeen NASA common technical practices to all elements of a system and all hierarchical levels of a system over the complete project life-cycle. The SE&I discipline brings together technologies, hardware, and software to create an efficient product that satisfies operational needs and is critical to the successful operation of any system comprised of multiple and interdependent subsystems and functions. The SE&I Division Chief reports to the Space Systems Department within the MSFC Engineering Directorate. The Division is organized into three branches--Project Engineering, Avionics Systems, and Systems Engineering of which all share in and contribute to the successfulness of the division's objectives and goals.

Project Engineering

The Project Engineering Branch provides Lead Systems Engineers (LSEs) with cross-cutting engineering capa-

bilities required to meet the challenges of current and future MSFC projects. The LSEs develop, document, and communicate assigned project technical approach that includes the application of the common technical processes; resources to be used; and identification of key technical tasks along with metrics and success criteria. They coordinate the day-to-day engineering support across the MSFC Engineering Directorate; manage the development and implementation of the project Systems Engineering products; keep the Project Manager and the Chief Engineer abreast of any technical issues/status; and execute technical/design reviews. The LSEs provide Interface Management, develop and evaluate Ground Integration, Operations, and Maintenance, Sustaining Engineering, Project Supportability, and Logistics Planning.

Systems Engineering

Systems Engineering Branch provides discipline expert Systems Engineers who apply Systems Engineering principles and practices and integrate other engineering resources to help solve the complex science and engineering challenges of MSFC projects. The Systems Engineers develop and manage Requirements, Verification, and Validation Plans; conduct Trade Studies, Risk Analysis/Assessment, Systems Analysis and Modeling, and Logical Decomposition of System and Subsystem Architectures and Functions; and develop Interface Definition and Control, Use/Need Definitions, and Operational Concepts.

The Systems Engineering Branch also provides MSFC projects with experienced and certified Configuration Management and Data Management (CM/DM) specialists. The CM/DM specialists ensure proper identification of configuration items; control configuration changes; ensure proper identification and definition of all project data requirements, establish preparation and control procedures, and preserve resulting records.

Avionics Systems

The Avionics Systems Branch provides Avionics Lead System Engineers (ALSEs) to the Upper Stage, First Stage, Upper Stage Engine, ARES 1-X and Vehicle Integration elements of the ARES program. The ALSEs serve as avionics and software systems/subsystem points of contact for their respective elements or projects. They are responsible for coordinating the day-to-day avionics and software support to their respective element, serving as the Space Systems Department interface to the ARES' Lead Systems Engineers (LSE), coordinating the development of avionics and software products, managing and coordinating ARES avionics and software resources, coordinating Change Requests (CR), providing technical integration, and keeping management, chief engineer(s), and their project lead(s)

abreast of technical issues and status. The branch also includes the ARES avionics architecture lead that is responsible for providing the avionics equipment list. The branch is responsible for integrated avionics and software testing insight and evaluation for the vehicle and supports the Level II avionics and software integration activities.

Point-of-Contact:

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